GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following paper :—

From the Consulting Engineer for Railways, dated 26th April 1890, No. 294.

From the Agent, South Indian Railway, to the Consulting Engineer for Railways, dated Trichinopoly, 21st April 1890, No. 549.

I submit, herewith, for the sanction of Government, revised estimate, No. 1222, amounting to Rs. 12,334, for the rebuilding of a bridge at A 57 mile 10 T.P.

2. Will you please be so kind as to communicate by wire authority for the execution of the work which has been started on the original sanction, and it is advisable that the revised design and estimate be approved as soon as possible.

3. Subsequent to the submission of the estimate referred to in your letter, No. 5[illegible] dated 6th July 1889, the Chief Engineer thought it advisable to confer the[illegible] with the Superintending Engineer of the V Circle, and Mr. Logan now the[illegible]:—

"From the information afforded by that officer I consider it necessary to recommend an increase of waterway over and above that provided in the original bridge.

"The Superintending Engineer of the V Circle advises me that the drainage area of the tank in which the bridge is situated is 10½ square miles; also that he considers we should allow 42·5 lineal feet of waterway and that the under side of our girder should be at least 5 feet above the crest of the calingulah.

"I send, herewith, a tracing, No. 225/89, from which it will be seen that the greater quantity of the supply to the tank reaches it through two bridges, each consisting of two openings of 20 feet each at the points B and C (these bridges were originally built by the Indian Tramway Company), and in addition to this a further supply enters the tank through a single 10-feet opening at the point A, at the north end of the tank.

"According to Dickens the discharge for 10½ square miles is 4,812 cubic feet per second, and calculating from the following reduced levels :—

"Reduced level of floor of proposed bridges		166·15
Do.	of highest recorded flood	178·49

"a bridge of two 20-feet spans would discharge this amount of 4,812 cubic feet, at a velocity of between 9 and 10 feet per second. I wish to bring to notice the following dimensions of the one calingulah at E which is the only escape provided for this tank, tracing of which, No. 52/90, is enclosed :—

		FT.
"Length between wing walls		113
"Clear waterway after deducting upright stone		90
"Reduced level of coping of wings		179·94
Do.	of top of upright stones	177·24
Do.	of crest	174·84

"I would also point out that the whole of the water passing over the calingulah has to find its way through a bridge of four openings at F, aggregating 20 lineal feet of waterway only, and subsequently under the Railway through a culvert of three spans of 3 feet and a girder bridge of a single 20-feet span. This provision for the escape from the tank has, as far as one can ascertain, been up to the present time found ample, but as compared with the drainage area of the tank it certainly does not appear to be sufficient.

"The Superintending Engineer considers that we should allow 42′ 6″ of waterway and that the under side of our girders should be 5 feet above the crest of the calingulah. I propose to put in two spans of 20 feet and the girder will be 4′ 6″ (179·33—174·84—4·49, say 4′ 6″) above the crest of the calingulah.

"If the Consulting Engineer considers my proposals sufficient, I beg that early sanction may be accorded to the accompanying revised estimate. I may add that, under the sanction already accorded, the rebuilding of the single 15-feet span has been commenced; if, therefore, the waterway is to be increased to 40 feet, it is very necessary that sanction be given with the least delay possible."

4. I forward, herewith, tracings Nos. 225/89 and 52/90.

Submitted for the sanction of Government.

2. The Agent, South Indian Railway, submits a revised estimate, amounting to Rs. 12,334, for demolishing and rebuilding the bridge at 57-10 mile, Arkónam branch.

3. The existing 15-feet girder bridge is unsafe, both abutments being badly cracked, and its early replacement is imperative. It was in the first instance intended to simply rebuild the bridge the same size, and an estimate for Rs. 7,503 was submitted and sanctioned. It has since, after consultation with the Irrigation Department, been deemed advisable to rebuild the bridge with two openings of 20-feet span, as it has to pass the drainage of 10½ square miles, which by Dickens' formula with a coefficient of 825 gives a discharge of 4,812 cubic feet per second, for which a bridge of this size will be necessary.

4. Although the old 15-feet bridge has hitherto been found sufficient, I am of opinion, taking into consideration the drainage area of the tank, that the bridge now proposed should be constructed, and the revised estimate is recommended for early sanction, as the work should, if possible, be completed before the monsoon. The Agent proposes to charge Rs. 4,320 against Capital and Rs. 8,014 against Revenue, but these sums will probably require slight modification. As the execution of this work is urgent, it is not considered advisable to retard the submission of estimate while readjusting the allocation.

5. Provision has been made in the budget for 1890-91.

ORDER—dated 30th April 1890, No. 597 R., Public Works.

Sanctioned, subject to the charges to Capital and Revenue being correctly allocated in the revised estimate.

2. This sanction has been registered as No. 3 R. of 1890-91.

(True Extract.)

Major, R.E.,
Under-Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways, with plan and estimate.
" Examiner, Guaranteed Railway Accounts.
" Chief Engineer for Irrigation.

Exd. A. Aubert.
Spare Copies

RAILWAY.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated April, 30th.

Recd. *Encl.*

G.O., 30th Apr. 1890, No. 597 R.

APRIL.

South Indian Railway

Revised estimate for demolishing and rebuilding the bridge at 57-10 miles, Arkónam branch, sanctioned.